

REFERENCES

- ALCOCK, A. (1889): Natural history notes from H.M. Indian Marine Survey Steamer "Investigator". - No. 13. On the bathybial fishes of the Bay of Bengal and neighbouring waters, obtained during the seasons 1885-1889. *Ann. Mag. Nat. Hist.* 6(4): 376-399.
- ALCOCK, A. (1891): Natural history notes from H.M. Indian Marine Survey Steamer "Investigator". Ser. II, No. 1. On the results of deep-sea dredging during the season 1890-91. *Ann. Mag. Nat. Hist.* 6(6):16-34.
- ALCOCK, A. (1894): Natural history notes from H.M. Indian Marine Survey Steamer "Investigator" - No. 11. An account of a recent collection of bathybial fishes from the Bay of Bengal and from the Laccadive Sea. *Journal of the Asiatic Society of Bengal* 58: 115-140.
- ALCOCK, A. (1895): Natural History notes from H.M. Indian Survey Steamer "Investigator". Ser. II, No. 18. On a new species of viviparous fish of the family Ophidiidae. *Ann. Mag. Nat. Hist.* 6(16): 144-146.
- ALCOCK, A. (1899): A descriptive catalogue of Indian deep-sea fishes in the Indian Museum, being a revised account of the deep-sea fishes collected by the royal Indian marine survey ship "Investigator." Calcutta. iii+211 pp. 1 map.
- BRAUER, A. (1906): Die Tiefsee-Fische. 1. Systematischer Teil. *Wiss. Ergeb. Dtsch. Tiefsee-Exped.* 15(1): 1-420.
- COHEN, D.M. & J.G. NIELSEN (1978): Guide to the identification of genera of the fish order Ophidiiformes with a tentative classification of the order. *NOAA Tech. Rep. NMFS Circ.* 417: 1-72.
- HAEDRICH, R.L. & N.R. MERRETT (1988): Summary atlas of deep-living demersal fishes in the North Atlantic Basin. *J. Nat. Hist.* 22: 1325-1362.
- KAMOHARA, T. (1936): Supplementary note on the fishes collected in the vicinity of Kocho-shi (IX). *Zool. Mag. Tokyo* 48(6): 306-311 (in Japanese with English summary).
- NORMAN, J.R. (1939): Fishes. *Sci. Rep. John Murray Exped., London* 7(1): 1-116.
- NIELSEN, J.G. & Y. MACHIDA (1988): Revision of the Indo-Pacific fish genus *Glyptothidium* (Ophidiiformes, Ophidiidae). *Jap. J. Ichthyol.* 35: 289-319.
- NIELSEN, J.G. & D.M. COHEN (1999): FAO Species Catalogue, Ophidiiformes fishes of the world (Order: Ophidiiformes). *FAO Fisheries Synopsis* No. 125, Vol. 18, Rome, 178 pp.
- MENON, A.G.K. & G.M. YAZDANI (1968): Catalogue of type specimens in the Zoological Survey of India, Part 2. *Fishes Rec. Zool. Surv. India.* 61: 91-190.
- MERRETT, N.R. & R.L. HAEDRICH (1997): Deep sea Demersal Fish and Fisheries. Chapman & Hall, London. pp. 282.
- RAFINESQUE, C.S. (1810): *Indice d'Ittiologia Siciliana*. Mesina. pp. 70.
- RADCLIFFE, L. (1913): Descriptions of seven new genera and thirty-one new species of fishes of the families Brotulidae and Carapidae from the Philippine Islands and the Dutch East Indies. *Proc. U. S. Natn. Mus.* 44: 135-176.
- SMITH, M.M. & P.C. HEEMSTRA (1986): Family Ophidiidae. *Smiths Sea Fishes*. Springer-Verlag, New York. 1047 pp.
- ZANDER, E. (1906): Das Kiemefilter bei Tiefseefischen. *Z. Wiss. Zool.* 85: 157-182.

7. AN ADDITIONAL RECORD OF LARVAL HOST PLANT OF TAWNY COSTER *ACRAEA VIOLAE* (FABRICIUS 1775)

RAHUL KHOT^{1,2} AND KSHAMATA GAIKWAD^{1,3}

¹Bombay Natural History Society, Hornbill House, S.B. Singh Road, Mumbai 400 001, Maharashtra, India.

²Email: rahul.bhns@gmail.com

³Email: gaikwadkshamata@gmail.com

Tawny Coster *Acraea violae* is a common nymphalid found in forest clearings, open country and gardens (Kunte 2000; Kehimkar 2008). During a faunal survey at Mazgaon, (18° 21' 58.66" N; 72° 55' 58.73" E; 14 m above msl) Taluka Murud-Janjira, District Raigad, Maharashtra, on January 13, 2010, we observed larvae of different instars of Tawny Coster feeding on a small shrub *Turnera ulmifolia* L., which is commonly known as 'Yellow Alder', belonging to Family Turneraceae. *Turnera ulmifolia* L. is a common cultivated plant about 1 m in height, stem erect, branches glandular pubescent. It occasionally occurs in scrub forests of Konkan (Ingthalikar 2001).

The perusal of literature elucidate that the *Turnera ulmifolia* is an unreported host plant for Tawny Coster (Table 1). Family Turneraceae is an additional host plant family taking the total to ten for Tawny Coster.

The larva only feeds on leaves and starts eating it in an arc length from the margins up to the mid-rib. *Turnera ulmifolia* is known for cyanogenesis (ability of plants to liberate hydrogen cyanide (HCN) when damaged). Schappert and Shore (1999) on Jamaica have studied the relationship of *Turnera ulmifolia* and *Euptoieta hegesia* in the context of cyanogenesis, herbivory and plant defence. Further research is needed to determine the effect of herbivory of Tawny Coster on *Turnera ulmifolia*. This observation is also particularly important as *Turnera ulmifolia* is an invasive alien species in India. It is interesting to know whether it is possible to use Tawny Coster to control invasion of *Turnera ulmifolia* in future.

Though we report *Turnera ulmifolia* as a host plant for the Tawny Coster *Acraea violae* in India, Robinson *et al.* (2010) reported two more nymphalid butterfly species feeding on *Turnera ulmifolia* in other parts of the world (Table 2).

Table 1: The account of known larval host plants of Tawny Coster according to different authors is given

Sr. No.	Host plants	Family	Authors
1	<i>Adenia hondala</i> (= <i>Modecca palmata</i>)	Passifloraceae	Wynter-Blyth 1957, Gunathilagaraj <i>et al.</i> 1998, Kunte 2000, Robinson <i>et al.</i> 2010, Parasharya and Jani 2007, Kehimkar 2008
2	<i>Passiflora foetida</i>		Wynter-Blyth 1957, Kunte 2000, Robinson <i>et al.</i> 2010, Parasharya and Jani 2007, Kehimkar 2008
3	<i>Passiflora edulis</i>		Kunte 2000, Robinson <i>et al.</i> 2010, Parasharya and Jani 2007, Kehimkar 2008
4	<i>Passiflora subpeltata</i>		Kunte 2000, Robinson <i>et al.</i> 2010, Parasharya and Jani 2007, Kehimkar 2008
5	<i>Passiflora</i> spp.		Gay <i>et al.</i> 1992, Gay <i>et al.</i> 2008, Gunathilagaraj <i>et al.</i> 1998
6	<i>Aposora lindleyana</i>	Euphorbiaceae	Kehimkar 2008
7	<i>Mangifera indica</i>	Anacardiaceae	Gunathilagaraj <i>et al.</i> 1998
8	<i>Musa</i> spp.	Musaceae	Gunathilagaraj <i>et al.</i> 1998
9	<i>Hybanthus enneaspermus</i>	Violaceae	Das <i>et al.</i> 2010
10	<i>Hibiscus cannabinus</i>	Malvaceae	Wynter-Blyth 1957
11	<i>Hibiscus</i> spp.		Gunathilagaraj <i>et al.</i> 1998
12	Members of the Family Cucurbitaceae	Cucurbitaceae	Wynter-Blyth 1957, Satyamurti 1966, Gay <i>et al.</i> 1992, 2008
13	Members of the Family Urticaceae	Urticaceae	Gunathilagaraj <i>et al.</i> 1998

Table 2: Other butterfly species recorded feeding on *Turnera ulmifolia* in rest of the world

Butterfly Species	Plant Species	Region
<i>Euptoieta claudia</i>	<i>Turnera ulmifolia</i>	Cuba
<i>Euptoieta claudia</i>	<i>Turnera ulmifolia</i>	New World
<i>Euptoieta hegesia</i>	<i>Turnera ulmifolia</i>	Central America
<i>Euptoieta hegesia</i>	<i>Turnera ulmifolia</i>	Puerto Rico

(Robinson *et al.* 2010)

ACKNOWLEDGEMENTS

We thank Mr. Varad Giri, Curator, BNHS, for his constant support and encouragement, Dr. Swapna Prabhu for her valuable inputs, Mr. Sameer Bajaru and Mr. Harish Kulkarni for their useful suggestions, and library staff of the BNHS for their generous help during literature survey.

REFERENCES

- DAS, R.P., A.B. ROY, R. POLLEY & G. SAHA (2010): A new record of larval host plant of Tawny Coster *Acraea violae* (Fabricius). *J. Bombay Nat. Hist. Soc.* 107(1): 63.
- GAY, T., I. KEHIMKAR & J. PUNETHA (1992): Common Butterflies of India (Nature Guides). WWF India and Oxford University Press, Mumbai, India. 67 pp.
- GAY, T., I. KEHIMKAR & J. PUNETHA (2008): Butterflies of India. WWF India and Oxford University Press, Delhi, India. 71 pp.
- GUNATHILAGARAJ, K., T.N.A. PERUMAL, K. JAYARAM & M. GANESH KUMAR (1998): Some South Indian Butterflies. Nilgiri Wildlife and Environment Association, Tamil Nadu, India. 273 pp.
- INGALHALIKAR, S. (2001): Further Flowers of Sahyadri. Corolla Publications, Pune, India. Pp. 310
- KEHIMKAR, I. (2008): The Book of Indian Butterflies. Bombay Natural History Society, Mumbai. 497 pp.
- KUNTE, K. (2000): Butterflies of Peninsular India (India: A Lifescape). Universities Press (Hyderabad) and Indian Academy of Science. 254 pp.
- PARASHARYA, B.M. & J.J. JANI (2007): Butterflies of Gujarat. Anand Agricultural University, Anand, India. 138 pp.
- ROBINSON, G.S., P.R. ACKERY, I.J. KITCHING, G.W. BECCALONI & L.M. HERNANDEZ (2010): Hosts – A Database of the World's Lepidopteran Hostplants. Natural History Museum, London. <http://www.nhm.ac.uk/hosts>. (Accessed: 3 March 2011).
- SATYAMURTI, S.T. (1966): Descriptive catalogue of the butterflies in the collection of the Madras Government Museum. *Bulletin of the Madras Government Museum* 7(1): 161-162.
- SCHAPPERT, P.J. & J.S. SHORE (1999): Cyanogenesis, herbivory and plant defence in *Turnera ulmifolia* on Jamaica. *Ecoscience* 6(4): 511-520.
- WYNTER-BLYTH, M.A. (1957): Butterflies of the Indian Region. Bombay Natural History Society, Mumbai. 523 pp.